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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,997	03/16/2004	William J. Begley	87887AEK	3335

7590 11/25/2008

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EXAMINER	
GARRETT, DAWN L	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
11/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/801,997	BEGLEY ET AL.	
	Examiner	Art Unit	
	Dawn Garrett	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,15-17,22,24,25,27-33,35-47 and 53-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *54* is/are allowed.

6)☒ Claim(s) *1,15-17,22,24,25,27-33,35-47,53,55 and 56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment filed August 6, 2008. Claims 1, 22, and 43 were amended. Claims 2-14, 18-21, 23, 26, 34, and 48-52 are cancelled. Claims 53-56 were newly added.

The current species is the following

Formula I wherein each of R1 to R4 is alkyl. R5 and R6 are non-substituted (e and f are zero).

2. The rejection of claim 14 under 35 U.S.C. 112, second paragraph, set forth in the last Office action is withdrawn due to the cancellation of claim 14.

3. The rejection of claims 1, 13-17, 19-20, 24, 25, 27-33, 35-44, 46, 47 and 49 under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087) in further view of Kobori et al. (US 6,285,039) is withdrawn due to the amendment.

4. The rejection of claim 45 under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087) in further view of Kobori et al. (US 6,285,039) in further view of Yamauchi et al. (US 5,640,067) is withdrawn due to the amendment.

5. The drawings filed August 6, 2008 are approved.

6. The previous indication of allowable subject (except for claim 54) set forth in the last Office action is withdrawn.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 15-17, 22, 24, 25, 27-33, 35-39, 40-42, 43-47, and 53 are rejected under 35 U.S.C. 103(a) as being obvious over Hatwar (US 2004/0058193 A1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Claim 1 of Hatwar teaches all of the required layers of claim 1 (see pages 15-16). Dependent claim 8 sets forth the required boron compounds (see page 17) per instant claims 1 and 22. Claim 3 teaches the yellow dopant per instant claims 15-17. It is noted that naphthacene yellow dopants other than NR and DBzR are within the general formula in Hatwar claim 1. Claims 10 and 11 teach the features of instant claims 24 and 25. Claims 13-19 teach the features of instant claims 27-33. Claims 21-24 teach the features of instant claims 35-39. Claims 25-27 teach the features of instant claims 40-42. Claims 28-32 teach the features of instant claims 43-47. Claim 20 teaches the feature of instant claim 53. Although Hatwar does not appear to *exemplify* a device comprising a naphthacene derivative according to the specific provisos of the claims, compounds within the group of those recited is clearly taught by the Hatwar general formula shown in Hatwar claim 1. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected any of the naphthacene derivatives taught by Hatwar for the yellow dopant of the hole transporting layer, because one would expect any of the naphthacene derivatives taught by Hatwar to provide a well-performing yellow light emitting layer similar to the exemplified compounds.

9. Claims 1, 15-17, 22, 43, and 44 are rejected under 35 U.S.C. 103(a) as being obvious over Hatwar et al. (US 2005/0147844 A1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of

invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Claim 6 teaches a device comprising the layers required by the instant independent claims (see page 22). Claim 10 teaches the blue dopant of the blue emitting layer may be a boron derivative as required by the instant independent claims and instant claim 22. Per instant claims 15-17, suitable amounts of rubrene derivatives for a device are disclosed within the examples. Although Hatwar does not appear to *exemplify* a device comprising a naphthacene derivative according to the specific provisos of the claims, compounds within the group of those recited is clearly taught by the Hatwar general formula shown in Hatwar claim 1. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected any of the naphthacene derivatives taught by Hatwar for the yellow dopant of the hole transporting layer, because one would expect any of the naphthacene derivatives taught by Hatwar to provide a well-performing yellow light emitting layer similar to the exemplified compounds.

10. Claims 1, 15-17, 22, 24, 25, 27-33, 41, 42, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087) in further view of Hoag et al. (US 2003/0201415 A1).

Matsuura teaches organic light emitting devices having first and second emitting layers (see abstract). Matsuura teaches a bluish layer comprising a blue compound and a reddish/yellow layer (see col. 3, lines 11-19). There may be a layer with a hole transporting material and may emit in the 580nm to 650nm range per the "hole transporting layer" (see col. 3, lines 20-28). The reference teaches rubrene as a dopant (see col.61, bottom compound). The device further includes an electron transporting layer (see col. 66, lines 49-56). The amount of dopant in the emitting layers is 0.1 to 10 mol% (see col. 61, lines 54-59).

Per claims 15-17, the amount of rubrene compound used in the layer is 0.1-10 mol % (see col. 61, lines 54-58).

The layer comprising the reddish emitting compound (which can by hole transporting as set forth above) is around 40 nm in thickness (see col. 67, lines 35-37) per claim 24.

Per claim 25, a further hole transporting layer may be formed (see Examples, col. 67, lines 19-31).

Per claim 27, the second light emitting layer is around 20 nm in thickness (see col. 67, lines 48-49).

Per claim 28 a hole injecting layer may be formed (see col. 64, lines 21-33).

Per claim 29, CuPc may be included (see col. 65, lines 30-40).

Per claim 30, the thickness may be 1 nm to 10 micrometers (see col. 66, lines 4-6).

Per claim 31, the electron transporting layer may be 1 nm to 10 micrometers (see col. 66, lines 54-56).

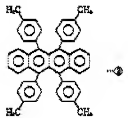
Per claim 32, magnesium and silver alloy cathodes are taught (see col. 68, lines 2-3).

Per claim 33, the cathode may be transparent (see col. 63, lines 17-20).

Per claims 41 and 47, there may be a layer of metal phthalocyanines adjacent the cathode (see col. 66, lines 39-41). Per claim 42, the thickness of such a layer is 1 nm to 10 micrometers (see col. 66, lines 54-56).

Per claim 46, hole transporting material includes arylamines (see col. 64, lines 34-55).

Matsuura is silent with respect to the specific rubrene species currently under consideration, but does teach compounds such as rubrene are appropriate. Sato teaches in analogous art light emitting naphthacene derivatives of the following formula for an EL device:



(see page 5 of JP patent document and abstract; same as instant formula I wherein R1-R4 are methyl).

It would have been obvious to one of ordinary skill in the art to have formed the Matsuura device using the rubrene derivatives taught by Sato in place of the rubrene taught in Matsuura, because one would expect the rubrene derivatives to be similarly useful as a light emitting material for the Matsuura device.

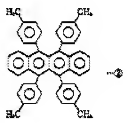
Matsuura is silent with respect to using a bis(azinyl)amine boron compound as the blue emitting material for the blue light emitting layer. Hoag et al. teaches in analogous art a blue

dopant such as general formula (1) for a light emitting layer of a device (see par. 9 and 17). It would have been obvious to one of ordinary skill in the art to have selected bis(azinyl)amine boron compounds as the fluorescent dopant for the Matsuura blue light emitting layer, because Matsuura teaches a blue light emitting material must be used in the layer to achieve blue light emission and one would expect to achieve a well-functioning EL device by incorporating a bis(azinyl)amine boron blue emitting compound.

11. Claims 35-40, 43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087) in further view of Hoag et al. (US 2003/0201415 A1) and Kobori et al. (US 6,285,039).

Matsuura teaches organic light emitting devices having first and second emitting layers (see abstract). Matsuura teaches a bluish layer and a reddish/yellow layer (see col. 3, lines 11-19). There may be a layer with a hole transporting material and may emit in the 580nm to 650nm range per the "hole transporting layer" (see col. 3, lines 20-28). The reference teaches rubrene as a dopant (see col.61, bottom compound). The device further includes an electron transporting layer (see col. 66, lines 49-56).

Matsuura is silent with respect to the specific rubrene species currently under consideration, but does teach compounds such as rubrene are appropriate. Sato teaches in analogous art light emitting naphthacene derivatives of the following formula for an EL device:



(see page 5 of JP patent document and abstract; same as instant formula I wherein R1-R4 are methyl).

It would have been obvious to one of ordinary skill in the art to have formed the Matsuura device using the rubrene derivatives taught by Sato in place of the rubrene taught in Matsuura, because one would expect the rubrene derivatives to be similarly useful as a light emitting material for the Matsuura device.

Matsuura is silent with respect to using a bis(azinyl)amine boron compound as the blue emitting material for the blue light emitting layer. Hoag et al. teaches in analogous art a blue dopant such as general formula (1) for a light emitting layer of a device (see par. 9 and 17). It would have been obvious to one of ordinary skill in the art to have selected bis(azinyl)amine boron compounds as the fluorescent dopant for the Matsuura blue light emitting layer, because Matsuura teaches a blue light emitting material must be used in the layer to achieve blue light emission and one would expect to achieve a well-functioning EL device by incorporating a bis(azinyl)amine boron blue emitting compound.

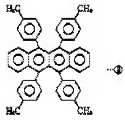
Matsuura et al. is silent with respect to including a green light emitting layer per claims 35-40. Kobori et al. teaches in analogous art the inclusion of a light emitting layer comprising a coumarin or quinacridone derivative in order to achieve a multi-color emission device (see abstract, top of column 40, col. 25-26, col. 17-18). Matsuura et al. also is silent with respect to including a color filter per instant claims 43 and 44. Kobori et al. teaches addition of a color

filter in a device may optimize the extraction efficiency and color purity (see col. 33, lines 53-56). It would have been obvious to one of ordinary skill in the art to have incorporated a green emitting layer, color filter and/or multiple dopants in the Matsuura et al. device, because Kobori et al. teaches it is known in the art to add these features in order to achieve a device emitting a desired color with a predictable result.

12. Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087) in further view of Hoag et al. (US 2003/0201415 A1) and Ottermann et al. (US 2003/0193286 A1).

Matsuura teaches organic light emitting devices having first and second emitting layers (see abstract). Matsuura teaches a bluish layer and a reddish/yellow layer (see col. 3, lines 11-19). There may be a layer with a hole transporting material and may emit in the 580nm to 650nm range per the "hole transporting layer" (see col. 3, lines 20-28). The reference teaches rubrene as a dopant (see col.61, bottom compound). The device further includes an electron transporting layer (see col. 66, lines 49-56).

Matsuura is silent with respect to the specific rubrene species currently under consideration, but does teach compounds such as rubrene are appropriate. Sato teaches in analogous art light emitting naphthacene derivatives of the following formula for an EL device:



(see page 5 of JP patent document and abstract; same as instant formula I wherein R1-R4 are methyl).

It would have been obvious to one of ordinary skill in the art to have formed the Matsuura device using the rubrene derivatives taught by Sato in place of the rubrene taught in Matsuura, because one would expect the rubrene derivatives to be similarly useful as a light emitting material for the Matsuura device.

Matsuura is silent with respect to using a bis(azinyl)amine boron compound as the blue emitting material for the blue light emitting layer. Hoag et al. teaches in analogous art a blue dopant such as general formula (1) for a light emitting layer of a device (see par. 9 and 17). It would have been obvious to one of ordinary skill in the art to have selected bis(azinyl)amine boron compounds as the fluorescent dopant for the Matsuura blue light emitting layer, because Matsuura teaches a blue light emitting material must be used in the layer to achieve blue light emission and one would expect to achieve a well-functioning EL device by incorporating a bis(azinyl)amine boron blue emitting compound.

Matsuura et al. is silent with respect to including a triplet emitter or polymeric emitter as a light emitting material in the device. Ottermann et al. teaches in analogous art electro-optical elements that may comprise triplet emitters and polymeric materials such as MEH-PPV as well as fluorescent materials in a layer doped with emitters for incorporation into an EL device (see par. 18). It would have been obvious to one of ordinary skill in the art to have included an polymeric emitter and/or a triplet emitter in the Matsuura et al. light emitting layers, because one would expect the materials to be similarly useful as emitters in the Matsuura et al. device and one would expect the emitters to help provide a desired color output and good performance from the device.

13. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087) in further view of Hoag et al. (US 2003/0201415) in further view of Yamauchi et al. (US 5,640,067). Matsuura et al., Sato et al. and Hoag et al. are relied upon as set forth above, but do not appear to mention a thin film transistor for use with the EL devices. Yamauchi et al. teaches thin film transistors for use with electroluminescent devices for controlling current applied to EL elements. It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated a TFT in the Matsuura et al. device, because one would expect the TFT to be similarly beneficial in controlling the current applied to the EL device.

Allowable Subject Matter

14. Claim 54 is allowed. The closest prior art, Matsuura (discussed above), fails to teach the limitations of these claims in combination with the other required limitations.

Response to Arguments

15. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/
Primary Examiner, Art Unit 1794